REMARKS

After the foregoing amendment, claims 4-11, as amended, are pending in the application. Claims 4-11 have been amended to more particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Claims 1-3 have been canceled. Claims 10 and 11 are allowed. Applicant submits that no new matter has been added to the application by the Amendment.

The Specification

Applicant has corrected typographical errors in the specification that have come to his attention, as noted on page 2 of the Amendment.

Objection to the Claims

The Examiner objected to claims 5 and 7 for not defining the parameter x_b. Applicant has amended claims 5 and 7 to make clear that the parameter x_b has a range of 0 to m. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the objection to the claims.

Rejection - 35 U.S.C. § 103

The Examiner rejected claims 4 and 9 under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 6,335,930 (Lee) in view of U.S. Patent No. 5,940,389 (Yang et al.). Applicant respectfully traverses the rejection.

Claim 4 recites:

> *An m-to-n multicast concentrator for routing input signals, each of the input signals being 0-bound, 1-bound, bicast, or idle, the concentrator comprising*
>
> *m input ports to receive the input signals,*
>
> *m output ports partitioned into two groups wherein m-n of the m output ports are grouped as a 0-output group*

and the remaining n output ports are grouped as a 1-output group, and

means, responsive to the input signals, for routing the maximum possible total number of 0-bound and bicast ones of the input signals to the 0-output group and the maximum possible total number of 1-bound and bicast ones of the input signals to the 1-output group.

The Examiner first states that Lee discloses a multicast switch in Fig. 6. However, Applicants are unable to find any teaching in Fig. 6. or otherwise in Lee, that suggests Lee's invention is capable of multicasting. As one skilled in the art would understand, in order for a switch to be a multicast switch, the switch must have at least one switching state in which a single input is connected to more than one output. At col. 5, lines 26-39, the basic element 500 of Lee's switch is described as a 3x3 switch without any reference to multicasting. Further, nowhere in Lee is an elemental switch described as having a switching state that connects a single input to more than one output. Also, the operation of Lee's switch does not depend on a switch capable of multicasting. Consequently, the switch described by Lee can not be characterized as a multicast switch.

Further, the Examiner appears to be equating a multicast switch with the multicast concentrator recited in claims 4 and 9. However a multicast concentrator is different from a multicast switch. As defined at page 200, line 17 to page 201, line 4: "for n<m, an mxm switch having an "0-output group" comprising the m-n outputs with the smallest addresses, that is, from 0 to m-n-1, and a "1-output group" comprising the remaining outputs and receiving 0-bound, 1 bound, idle and bicast input signals is called an m-to-n multicast concentrator if it routes the maximum possible total number of 0-bound and bicast signals to the 0-output group and the maximum possible total number of 1-bound and bicast signals to the 1-output group." A multicast switch routes input signals to the output ports based strictly on the output addresses provided by the control signal and does not route input signals to a group of output ports based on whether the input signal is 0-bound, 1-bound or bicast, as defined for the claimed concentrator.

Also, there is no teaching or suggestion that the output ports of the switch described by Lee are partitioned into a "0-output group" having m-n output ports and a "1-output

group" having n output ports, receiving 0-bound, 1 bound, idle and bicast input signals and routing the maximum possible total number of 0-bound and bicast signals to the 0-output group and the maximum possible total number of 1-bound and bicast signals to the 1-output group as recited in claims 4 and 9.

The Examiner further states that Lee does not disclose bicast signals for routing in a multistage interconnection network but that Yang et al. discloses a system and method for assigning a routing tag for routing signals through a Benes network comprising 2X2 Beta elements wherein the routing tags and the comparator generate different control sequences for each input signal to support grouping channels, e.g. multicasting.

The Examiner appears to be stating that the switch elements disclosed by Yang et al. support bicast signals. However, this is clearly not the case. In order to support a bicast signal, a switch element must have a connection state that simultaneously connects an input bicast signal on one input of the switch to both the "0" output and the "1" output of the switch. As described at col. 10, lines 9-38 however, the switching element used by Yang et al. is a β element. Such an element can only be set in a bar state or a cross state. (See col. 6, lines 34-35). Such a configuration does not have a state which connects one input to both outputs. .

Further, the grouping of switches disclosed by Yang et al. into upper and lower Benes networks is not based on the rule recited in claims 4 and 9. The partitioning recited in claims 4 and 9 divides the output ports into a "0-output group" and a "1-output group" to which signals are routed based on whether they are "0 bound" (i.e. bound for the 0-ouput group) or "1 bound" (i.e. bound for the 1-output group) or bicast (bound for both the 0-output group and the 1 output group). In contrast, signals are routed to the upper and lower subnetworks described by Yang et al. based on properties 1 and 2. (col. 10, lines 54-68). Properties 1 and 2 are related to the contention regardless of whether they are 0- bound, 1-bound or bicast.

Neither Lee nor Yang et al. teach or suggest a multicast concentrator. Further, neither Lee nor Yang teach or suggest the structure recited in claims 4 and 9. Specifically, neither Lee nor Yang et al. teach or suggest a switch having m output ports partitioned into two groups, where m-n of the m output ports are grouped as a 0-output group and the remaining n output ports are grouped as a 1-output group, and means, responsive to the input signals, for routing the maximum possible total number of 0-bound and bicast ones of the input signals to the 0-output group and the maximum possible total number of 1-bound and bicast ones of the input

signals to the 1-output group. Applicant submits that the combination of Lee and Yang et al. does not make claims 4 and 9 obvious. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the § 103 rejection of claims 4 and 9.

Allowable Subject Matter

The Examiner objected to claims 5-8 as being dependent upon a rejected base claim but stated that claims 5-8 would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. Claim 4 has been shown to be allowable. Consequently, claims 5-8 dependent on claim 4 are allowable, at least by their dependency on allowable claim 4. Accordingly, for all the above reasons, Applicant respectfully requests reconsideration and withdrawal of the objection to claims 5-8.

Conclusion

Insofar as the Examiner's objections and rejections have been fully addressed, the instant application, including claims 4-11, is in condition for allowance and Notice of Allowability of claims 4-11 is therefore earnestly solicited.

Respectfully submitted,

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